REMARKS

Claims 1-8 and 13-20 are pending in this application. Claim 1 is an independent claim.

By this Amendment, claim 13 is amended for form. Reconsideration of the application is respectfully requested.

Entry of the amendments is proper under 37 CFR §1.116 because the amendments: (a) place the application in condition for allowance (for the reasons discussed herein); (b) do not raise any new issue requiring further search and/or consideration (as the amendments amplify issues previously discussed throughout prosecution); (c) satisfy a requirement of form asserted in the previous Office Action; (d) do not present any additional claims without canceling a corresponding number of finally rejected claims; and (e) place the application in better form for appeal, should an appeal be necessary. Entry of the amendments is thus respectfully requested.

The Office Action rejects claims 13-20 under 35 U.S.C. §112, second paragraph. The Office Action asserts that the recitation "the forming agent" lacks antecedent basis. The Office Action also indicates that, for examination purposes, this recitation is construed as "pore-forming agent." Claim 13 is amended to change "the forming agent" to "the pore-forming agent," as the Examiner suggested, to overcome this rejection. Accordingly, withdrawal of the rejection is respectfully requested.

The Office Action rejects claims 1-3, 6, 8, 13-15, 18 and 20 under 35 U.S.C. §103(a) over U.S. Patent Application Publication No. 2002/0180119 to Kumazawa in view of U.S. Patent Application Publication No. 2003/0041574 to Noguchi; rejects claims 1-4, 6-8, 13-16 and 18-20 under 35 U.S.C. §103(a) over Kumazawa in view of Noguchi and further in view of U.S. Patent No. 5,087,278 to Suzuki; and rejects claims 5 and 17 under 35 U.S.C. §103(a) over Kumazawa in view of Noguchi and Suzuki and further in view of

U.S. Patent Application Publication No. 2004/0053050 to Guerfi. These rejections are respectfully traversed.

I. Claims 1-8

Claim 1 recites a specific range of negative pressure (reduced pressure). The Office Action recognizes that Kumazawa does not disclose this feature, but asserts that Noguchi discloses a vacuum tug mill at paragraph [0082] that is used for mixing the clay. The Office Action recognizes that Noguchi does not disclose a specific negative pressure range, but asserts that one of ordinary skill would have optimized the negative pressure to the range recited in claim 1. The Office Action also asserts that the pressure range recited in claim 1 does not appear to achieve anything beyond expected and predictable results.

In the previous Amendment filed January 29, 2010, Applicants asserted that (1) the Office Action has not established a reason for the asserted "optimization," and (2) the recited pressure range yields unexpected results.

A. "Optimization"

The previous Amendment argued against the asserted "optimization." The current Office Action does not appear to adequately respond to this argument.

In particular, in the previous Amendment, Applicants asserted that the recited pressure range is discovered based on the balance between having the clay sufficiently deaerated, and, at the same time, preventing microcapsule damage. Noguchi does not recognize such a desired balance. Noguchi only discloses gas removal. Thus, even if "optimized," Noguchi would teach a pressure for optimal gas removal, which is not necessarily the same as the pressure range for the balance between having the clay deaerated and, at the same time, preventing microcapsule damage. Therefore, Noguchi, even if combined with Kumazawa, would not have rendered obvious the pressure range recited in claim 1.

In the "Response to Arguments" section, the Office Action merely asserts that Noguchi recognizes pressure has a result-effective variable for at least removing gas. Thus, the Office Action asserts that one of ordinary skill would have optimized this variable through routine experimentation to achieve a desirable product.

However, the Office Action's response is not to the point. At issue is whether the recited pressure range based on the above-discussed balance is obvious over an asserted optimal pressure for removing gas. Optimization of pressure for different purposes would not necessarily result in the same pressure range. In particular, a pressure range optimized for gas removal would not be necessarily the same as the pressure range optimized for the above-discussed balance. Thus, even if Noguchi discloses optimizing a pressure range, the asserted optimized range of Noguchi is not necessarily the range recited in claim 1. Under the result-effective variable theory, a particular parameter must first be recognized as a result-effective variable, i.e., a variable which achieves a recognized result, before the determination of the optimum or workable ranges of said variable might be characterized as routine experimentation. MPEP §2144.05(II) (B). The Office Action fails to establish that Noguchi recognizes the above discussed balanced result. Thus, the Office Action's application of the result-effective variable theory is improper, because Noguchi is directed to a different result.

B. Unexpected Result

In the previous Amendment, Applicants also asserted that the negative pressure range recited in claim 1 yields unexpected results. Applicants pointed to the specification at Table 2 and paragraph [0098]. Applicants then rebutted the asserted obviousness by asserting that the recited negative pressure range is a critical feature.

In the "Response to Arguments" section, the Office Action asserts that the specification does not sufficiently show criticality. The Office Action appears to be arguing that Table 2 only includes four data points within the claimed range and only one data point

outside the range. The Office Action also appears to be asserting that such a small data set could not be sufficient to show criticality commensurate in scope with the recitation in the claims.

However, one of ordinary skill, when reading the specification, would have understood that the recited pressure range is of criticality. Table 2 of the specification has four data points within the recited range and one point outside the range. Such data clearly convey to one of ordinary skill in this art as to the unexpected results.

II. Claims 13-20

Claim 13 recites "wherein only 1-3 parts by mass of the forming agent is added in 100 parts by mass of the raw material particles so as to achieve a porosity of the porous ceramics structure in a controlled range of 60-72 %." The previous Amendment argued that the applied references do not disclose this feature.

In response, the Office Action asserts that Noguchi discloses this feature at Table 2. This assertion is improper for the following reasons.

First, one of ordinary skill would have had no reason to combine Noguchi with Kumazawa in the way asserted in the Office Action. Kumazawa clearly states that the use of specially prepared raw materials is essential to produce a honeycomb structure having a very thin partition wall, as is described in paragraph [0009]. This means that no pore-forming agent is used in the mixed clay for extrusion since the use of a pore-forming agent results in either the formation of weak partition walls due to the excess formation of pores, especially in the very thin partition walls (rib) or failure to produce a honeycomb having a very thin partition wall, as intended, such as the one having a thin partition wall of 38 μm, as is described in paragraph [0028] (see the last sentence thereof).

This is supported by the Examples in Kumazawa. A comparison of the data shown in Table 2 and that of Table 4 of Kumazawa demonstrates that the porosity of the resultant honeycomb structure becomes smaller if the amounts of calcined kaolin and kaolin increase.

On the other hand, paragraph [0018] of Noguchi implies that a use of the restricted amount of kaolin in the cordierite-forming raw material can give a cordierite honeycomb structure having a porosity distribution, as is defined in claims 1-3 thereof, with a relatively high porosity of approximately 60%, as is demonstrated by Examples shown in Table 3 of Noguchi. That is, the use of kaolin in the cordierite-forming raw material should be in a less amount so as to make the average pore diameter and the average porosity larger. This technical concept is completely opposite to that of Kumazawa.

Thus, the disclosures in Kumazawa and Noguchi clearly deny the suitability of using a pore-forming agent disclosed by Noguchi in the composition disclosed by Kumazawa, contrary to the Office Action's assertion.

Second, any ordinary artisan would have understood that the term "forming agent" referred to in paragraph [0007] of Kumazawa does not include "pore-forming agent" in any means. That is, the term "forming agent," which is often referred to also as "forming aid," means a material to be used for the retention of a shape of a green formed body after forming, especially extrusion forming until the green formed body is subjected to at least a drying step. Therefore, the Office Action's assertion on page 2, the last paragraph, and page 3, paragraph 4 is groundless.

In view of the above, as a whole, any ordinary artisan would not have had a reason to combine the teachings of Noguchi with those of Kumazawa due to the difference in their technical concept.

Furthermore, the Office Action, at page 3, the third paragraph, appears to be improperly generalizing the statement in paragraph [0059] of Noguchi. The statement in

question merely describes that a relative performance with the specified expanded foam resin (ballooned resin) in this paragraph is of less heat-liberation property due to the exertion of the intended performance even with less amount when used, compared with the other ones listed in paragraph [0058] of Kumazawa.

In particular, the objective of Kumazawa is not to reduce the heat generated by firing the pore-forming agent, but to remove defects of the honeycomb structure caused by agglutination of the raw materials during the preparatory works for mixed clay for extrusion. Thus, there is no description motivating any artisans to combine the teachings of Noguchi with those of Kumazawa in this respect.

III. Conclusion

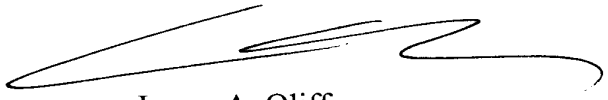
For at least the above reasons, the rejection of independent claim 1 is improper. Claims 2-8 and 13-20 are patentable at least in view of the patentability of claim 1, from which they depend, as well as for additional features they recite. For example, as discussed above, claim 13 is patentable over the applied references.

Accordingly, withdrawal of the rejection of claims 1-8 and 13-20 under 35 U.S.C. §103(a) is respectfully requested.

In view of the foregoing, it is respectfully submitted that this application is in condition for allowance. Favorable reconsideration and prompt allowance of claims 1-8 and 13-20 are earnestly solicited.

Should the Examiner believe that anything further would be desirable in order to place this application in even better condition for allowance, the Examiner is invited to contact the undersigned at the telephone number set forth below.

Respectfully submitted,



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Attachment:
Petition for Extension of Time

Date: July 22, 2010

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